

Whiting Oil & Gas

Well Name: **Horsetail #16B-1612B**

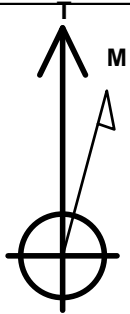
Surface Location: Horsetail 16B PAD Sec.16-T10N-R57W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4776.6

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1555535.45	3482979.34	40.845272	-103.754269	
RKB - 17.3' Well @ 4793.9ft (RKB - 17.3')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 395'FNL & 2092'FEL	1.8	0.0	0.0	Point
BHL 600'FSL & 1485'FEL	5522.0	-4313.4	652.5	Point



Azimuths to True North
Magnetic North: 7.99°

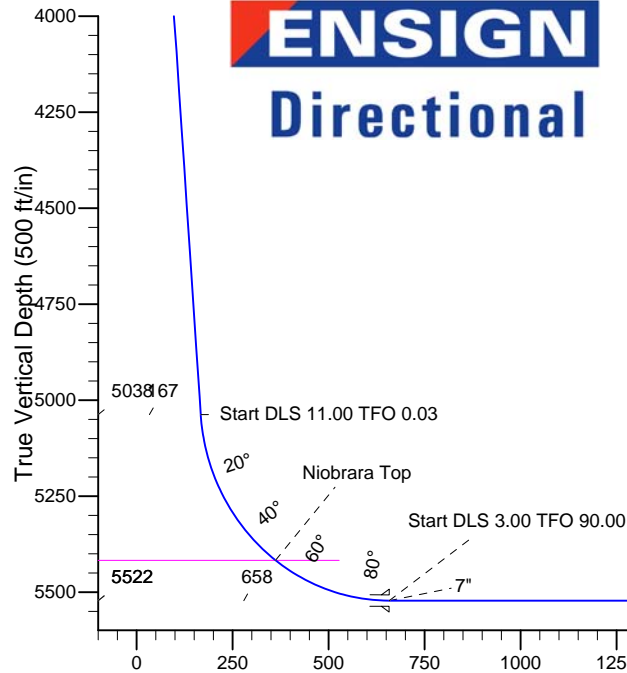
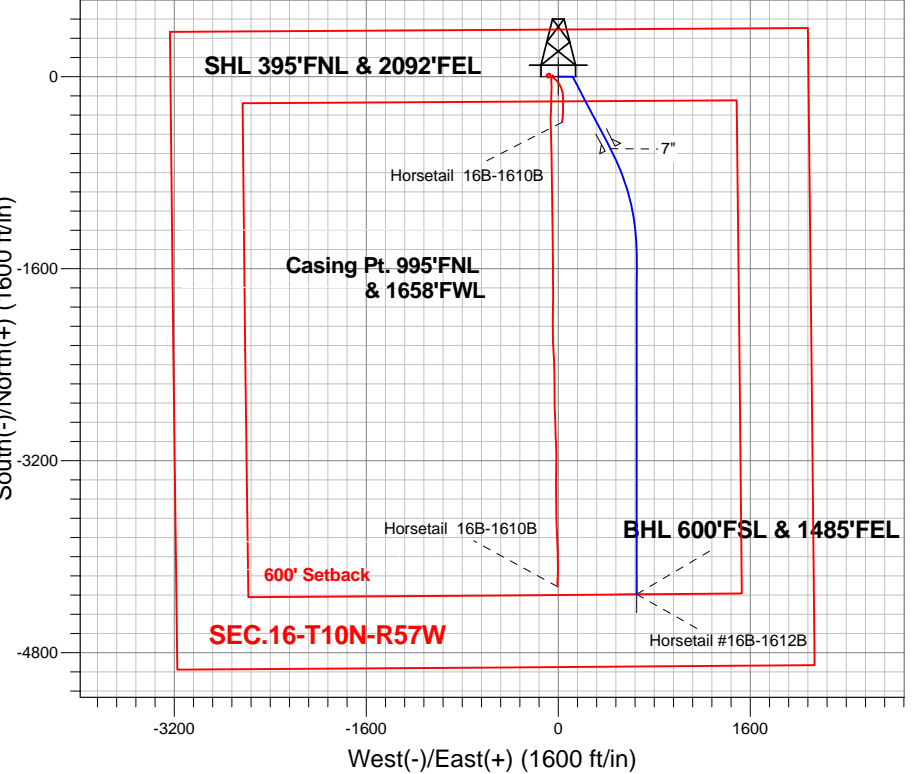
Magnetic Field
Strength: 53190.4nT
Dip Angle: 67.48°
Date: 1/21/2014
Model: IGRF2010

Horsetail 16B PAD Sec.16-T10N-R57W
Horsetail #16B-1612B
Plan #2 (1-21-14)
14:25, January 21 2014

ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	KOP - Start Build 2.00
2696.2	2700.0	Start DLS 2.00 TFO 120.57
5037.8	5047.4	Start DLS 11.00 TFO 0.03
5522.0	5828.8	Start DLS 3.00 TFO 90.00
5522.0	9577.8	TD at 9577.8

South(-)/North(+) (1600 ft/in)



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1200.0	4.00	90.00	1199.8	0.0	7.0	2.00	90.00	1.0	
4	2700.0	4.00	90.00	2696.2	0.0	111.6	0.00	0.00	16.7	
5	2907.8	4.04	152.27	2903.5	-6.5	122.3	2.00	120.57	24.7	
6	5047.4	4.04	152.27	5037.8	-140.0	192.5	0.00	0.00	167.2	
7	5828.8	90.00	152.30	5522.0	-600.0	434.0	11.00	0.03	658.2	
8	6752.4	90.00	180.01	5522.0	-1488.0	652.9	3.00	90.00	1568.9	
9	9577.8	90.00	180.01	5522.0	-4313.4	652.5	0.00	0.00	4362.5	BHL 600'FSL & 1485'FEL

BHL 600'FSL & 1485'FEL

TD at 9577.8

Vertical Section at 171.40° (500 ft/in)



Whiting Oil & Gas

SEC.16-T10N-R57W

Horsetail 16B PAD Sec.16-T10N-R57W

Horsetail #16B-1612B

Wellbore #1

Plan: Plan #2 (1-21-14)

Standard Planning Report

21 January, 2014

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,200.0	4.00	90.00	1,199.8	0.0	7.0	2.00	2.00	0.00	90.00	
2,700.0	4.00	90.00	2,696.2	0.0	111.6	0.00	0.00	0.00	0.00	
2,907.8	4.04	152.27	2,903.5	-6.5	122.3	2.00	0.02	29.97	120.57	
5,047.4	4.04	152.27	5,037.8	-140.0	192.5	0.00	0.00	0.00	0.00	
5,828.8	90.00	152.30	5,522.0	-600.0	434.0	11.00	11.00	0.00	0.03	
6,752.4	90.00	180.01	5,522.0	-1,488.0	652.9	3.00	0.00	3.00	90.00	
9,577.8	90.00	180.01	5,522.0	-4,313.4	652.5	0.00	0.00	0.00	0.00	BHL 600'FSL & 148

Database:	Landmark	Local Co-ordinate Reference:	Well Horsetail #16B-1612B
Company:	Whiting Oil & Gas	TVD Reference:	Well @ 4793.9ft (RKB - 17.3')
Project:	SEC.16-T10N-R57W	MD Reference:	Well @ 4793.9ft (RKB - 17.3')
Site:	Horsetail 16B PAD Sec.16-T10N-R57W	North Reference:	True
Well:	Horsetail #16B-1612B	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (1-21-14)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.8	0.00	0.00	1.8	0.0	0.0	0.0	0.00	0.00	0.00
SHL 395'FNL & 2092'FEL									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 2.00									
1,100.0	2.00	90.00	1,100.0	0.0	1.7	0.3	2.00	2.00	0.00
1,200.0	4.00	90.00	1,199.8	0.0	7.0	1.0	2.00	2.00	0.00
1,300.0	4.00	90.00	1,299.6	0.0	14.0	2.1	0.00	0.00	0.00
1,400.0	4.00	90.00	1,399.4	0.0	20.9	3.1	0.00	0.00	0.00
1,500.0	4.00	90.00	1,499.1	0.0	27.9	4.2	0.00	0.00	0.00
1,600.0	4.00	90.00	1,598.9	0.0	34.9	5.2	0.00	0.00	0.00
1,700.0	4.00	90.00	1,698.6	0.0	41.9	6.3	0.00	0.00	0.00
1,800.0	4.00	90.00	1,798.4	0.0	48.8	7.3	0.00	0.00	0.00
1,900.0	4.00	90.00	1,898.1	0.0	55.8	8.3	0.00	0.00	0.00
2,000.0	4.00	90.00	1,997.9	0.0	62.8	9.4	0.00	0.00	0.00
2,100.0	4.00	90.00	2,097.6	0.0	69.8	10.4	0.00	0.00	0.00
2,200.0	4.00	90.00	2,197.4	0.0	76.7	11.5	0.00	0.00	0.00
2,300.0	4.00	90.00	2,297.2	0.0	83.7	12.5	0.00	0.00	0.00
2,400.0	4.00	90.00	2,396.9	0.0	90.7	13.6	0.00	0.00	0.00
2,500.0	4.00	90.00	2,496.7	0.0	97.7	14.6	0.00	0.00	0.00
2,600.0	4.00	90.00	2,596.4	0.0	104.6	15.7	0.00	0.00	0.00
2,700.0	4.00	90.00	2,696.2	0.0	111.6	16.7	0.00	0.00	0.00
Start DLS 2.00 TFO 120.57									
2,800.0	3.44	120.02	2,796.0	-1.5	117.7	19.1	2.00	-0.56	30.02
2,900.0	3.96	150.35	2,895.8	-6.0	122.0	24.2	2.00	0.52	30.33
2,907.8	4.04	152.27	2,903.5	-6.5	122.3	24.7	2.00	1.02	24.66
3,000.0	4.04	152.27	2,995.5	-12.2	125.3	30.8	0.00	0.00	0.00
3,100.0	4.04	152.27	3,095.3	-18.5	128.6	37.5	0.00	0.00	0.00
3,200.0	4.04	152.27	3,195.0	-24.7	131.9	44.2	0.00	0.00	0.00
3,300.0	4.04	152.27	3,294.8	-31.0	135.1	50.8	0.00	0.00	0.00
3,400.0	4.04	152.27	3,394.5	-37.2	138.4	57.5	0.00	0.00	0.00
3,500.0	4.04	152.27	3,494.3	-43.4	141.7	64.1	0.00	0.00	0.00
3,600.0	4.04	152.27	3,594.0	-49.7	145.0	70.8	0.00	0.00	0.00
3,700.0	4.04	152.27	3,693.8	-55.9	148.3	77.5	0.00	0.00	0.00
3,800.0	4.04	152.27	3,793.5	-62.2	151.5	84.1	0.00	0.00	0.00
3,900.0	4.04	152.27	3,893.3	-68.4	154.8	90.8	0.00	0.00	0.00
4,000.0	4.04	152.27	3,993.0	-74.6	158.1	97.4	0.00	0.00	0.00
4,100.0	4.04	152.27	4,092.8	-80.9	161.4	104.1	0.00	0.00	0.00
4,200.0	4.04	152.27	4,192.5	-87.1	164.7	110.8	0.00	0.00	0.00
4,300.0	4.04	152.27	4,292.3	-93.3	167.9	117.4	0.00	0.00	0.00
4,400.0	4.04	152.27	4,392.1	-99.6	171.2	124.1	0.00	0.00	0.00
4,500.0	4.04	152.27	4,491.8	-105.8	174.5	130.7	0.00	0.00	0.00
4,600.0	4.04	152.27	4,591.6	-112.1	177.8	137.4	0.00	0.00	0.00
4,700.0	4.04	152.27	4,691.3	-118.3	181.1	144.1	0.00	0.00	0.00

Database: Landmark
Company: Whiting Oil & Gas
Project: SEC.16-T10N-R57W
Site: Horsetail 16B PAD Sec.16-T10N-R57W
Well: Horsetail #16B-1612B
Wellbore: Wellbore #1
Design: Plan #2 (1-21-14)

Local Co-ordinate Reference: Well Horsetail #16B-1612B
TVD Reference: Well @ 4793.9ft (RKB - 17.3')
MD Reference: Well @ 4793.9ft (RKB - 17.3')
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,800.0	4.04	152.27	4,791.1	-124.5	184.3	150.7	0.00	0.00	0.00
4,900.0	4.04	152.27	4,890.8	-130.8	187.6	157.4	0.00	0.00	0.00
5,000.0	4.04	152.27	4,990.6	-137.0	190.9	164.0	0.00	0.00	0.00
5,047.4	4.04	152.27	5,037.8	-140.0	192.5	167.2	0.00	0.00	0.00
Start DLS 11.00 TFO 0.03									
5,100.0	9.83	152.29	5,090.0	-145.6	195.4	173.2	11.00	11.00	0.04
5,200.0	20.83	152.29	5,186.3	-169.0	207.7	198.1	11.00	11.00	0.01
5,300.0	31.83	152.30	5,275.8	-208.2	228.3	240.0	11.00	11.00	0.00
5,400.0	42.83	152.30	5,355.2	-261.8	256.4	297.2	11.00	11.00	0.00
5,492.3	52.98	152.30	5,417.0	-322.3	288.2	361.8	11.00	11.00	0.00
Niobrara Top									
5,500.0	53.83	152.30	5,421.6	-327.8	291.1	367.7	11.00	11.00	0.00
5,600.0	64.83	152.30	5,472.5	-403.8	331.0	448.8	11.00	11.00	0.00
5,700.0	75.83	152.30	5,506.1	-487.1	374.7	537.7	11.00	11.00	0.00
5,800.0	86.83	152.30	5,521.2	-574.5	420.6	630.9	11.00	11.00	0.00
5,828.8	90.00	152.30	5,522.0	-600.0	434.0	658.1	11.00	11.00	0.00
Start DLS 3.00 TFO 90.00 - 7"									
5,900.0	90.00	154.43	5,522.0	-663.6	465.9	725.8	3.00	0.01	3.00
6,000.0	90.00	157.43	5,522.0	-754.9	506.7	822.2	3.00	0.00	3.00
6,100.0	90.00	160.43	5,522.0	-848.2	542.6	919.8	3.00	0.00	3.00
6,200.0	90.00	163.43	5,522.0	-943.3	573.6	1,018.5	3.00	0.00	3.00
6,300.0	90.00	166.43	5,522.0	-1,039.8	599.6	1,117.8	3.00	0.00	3.00
6,400.0	90.00	169.43	5,522.0	-1,137.6	620.5	1,217.6	3.00	0.00	3.00
6,500.0	90.00	172.43	5,522.0	-1,236.3	636.3	1,317.6	3.00	0.00	3.00
6,600.0	90.00	175.43	5,522.0	-1,335.8	646.8	1,417.5	3.00	0.00	3.00
6,700.0	90.00	178.43	5,522.0	-1,435.6	652.2	1,517.0	3.00	0.00	3.00
6,752.4	90.00	180.01	5,522.0	-1,488.0	652.9	1,568.9	3.00	0.00	3.00
6,800.0	90.00	180.01	5,522.0	-1,535.6	652.9	1,616.0	0.00	0.00	0.00
6,900.0	90.00	180.01	5,522.0	-1,635.6	652.9	1,714.9	0.00	0.00	0.00
7,000.0	90.00	180.01	5,522.0	-1,735.6	652.9	1,813.7	0.00	0.00	0.00
7,100.0	90.00	180.01	5,522.0	-1,835.6	652.8	1,912.6	0.00	0.00	0.00
7,200.0	90.00	180.01	5,522.0	-1,935.6	652.8	2,011.5	0.00	0.00	0.00
7,300.0	90.00	180.01	5,522.0	-2,035.6	652.8	2,110.4	0.00	0.00	0.00
7,400.0	90.00	180.01	5,522.0	-2,135.6	652.8	2,209.2	0.00	0.00	0.00
7,500.0	90.00	180.01	5,522.0	-2,235.6	652.8	2,308.1	0.00	0.00	0.00
7,600.0	90.00	180.01	5,522.0	-2,335.6	652.8	2,407.0	0.00	0.00	0.00
7,700.0	90.00	180.01	5,522.0	-2,435.6	652.8	2,505.8	0.00	0.00	0.00
7,800.0	90.00	180.01	5,522.0	-2,535.6	652.7	2,604.7	0.00	0.00	0.00
7,900.0	90.00	180.01	5,522.0	-2,635.6	652.7	2,703.6	0.00	0.00	0.00
8,000.0	90.00	180.01	5,522.0	-2,735.6	652.7	2,802.5	0.00	0.00	0.00
8,100.0	90.00	180.01	5,522.0	-2,835.6	652.7	2,901.3	0.00	0.00	0.00
8,200.0	90.00	180.01	5,522.0	-2,935.6	652.7	3,000.2	0.00	0.00	0.00
8,300.0	90.00	180.01	5,522.0	-3,035.6	652.7	3,099.1	0.00	0.00	0.00
8,400.0	90.00	180.01	5,522.0	-3,135.6	652.7	3,198.0	0.00	0.00	0.00
8,500.0	90.00	180.01	5,522.0	-3,235.6	652.7	3,296.8	0.00	0.00	0.00
8,600.0	90.00	180.01	5,522.0	-3,335.6	652.6	3,395.7	0.00	0.00	0.00
8,700.0	90.00	180.01	5,522.0	-3,435.6	652.6	3,494.6	0.00	0.00	0.00
8,800.0	90.00	180.01	5,522.0	-3,535.6	652.6	3,593.5	0.00	0.00	0.00
8,900.0	90.00	180.01	5,522.0	-3,635.6	652.6	3,692.3	0.00	0.00	0.00
9,000.0	90.00	180.01	5,522.0	-3,735.6	652.6	3,791.2	0.00	0.00	0.00
9,100.0	90.00	180.01	5,522.0	-3,835.6	652.6	3,890.1	0.00	0.00	0.00
9,200.0	90.00	180.01	5,522.0	-3,935.6	652.6	3,988.9	0.00	0.00	0.00
9,300.0	90.00	180.01	5,522.0	-4,035.6	652.6	4,087.8	0.00	0.00	0.00



Whiting Oil & Gas

SEC.16-T10N-R57W

Horsetail 16B PAD Sec.16-T10N-R57W

Horsetail #16B-1612B

Wellbore #1

Plan #2 (1-21-14)

Anticollision Report

21 January, 2014

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #16B-1612B
Project:	SEC.16-T10N-R57W	TVD Reference:	Well @ 4793.9ft (RKB - 17.3')
Reference Site:	Horsetail 16B PAD Sec.16-T10N-R57W	MD Reference:	Well @ 4793.9ft (RKB - 17.3')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Horsetail #16B-1612B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (1-21-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #2 (1-21-14)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 1/21/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	9,577.8	Plan #2 (1-21-14) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Horsetail 16B PAD Sec.16-T10N-R57W						
Horsetail 16B-1610B - Wellbore #1 - Wellbore #1	205.6	205.6	66.0	65.4	109.488	CC
Horsetail 16B-1610B - Wellbore #1 - Wellbore #1	500.0	499.8	67.0	65.1	34.994	ES
Horsetail 16B-1610B - Wellbore #1 - Wellbore #1	5,310.4	5,432.1	228.7	207.2	10.658	SF
Horsetail 16B-1610B - Wellbore #2 - Wellbore #2	205.6	205.6	66.0	65.4	109.488	CC
Horsetail 16B-1610B - Wellbore #2 - Wellbore #2	500.0	499.8	67.0	65.1	34.994	ES
Horsetail 16B-1610B - Wellbore #2 - Wellbore #2	9,577.8	9,535.0	662.4	501.3	4.113	SF
Horsetail #16B-1609A - Wellbore #1 - Plan #1 (10-24-13)	1,000.0	1,000.0	124.5	120.2	29.150	CC, ES
Horsetail #16B-1609A - Wellbore #1 - Plan #1 (10-24-13)	9,577.8	9,578.0	992.2	825.3	5.944	SF
Horsetail #16B-1611A - Wellbore #1 - Plan #2 (1-21-14)	1,000.0	1,000.0	76.9	72.6	18.000	CC
Horsetail #16B-1611A - Wellbore #1 - Plan #2 (1-21-14)	1,100.0	1,100.0	77.3	72.6	16.414	ES
Horsetail #16B-1611A - Wellbore #1 - Plan #2 (1-21-14)	9,577.8	9,520.7	336.2	171.3	2.039	SF

Offset Design												
Horsetail 16B PAD Sec.16-T10N-R57W - Horsetail 16B-1610B - Wellbore #1 - Wellbore #1												
Survey Program: 185-MWD												
Reference												
Offset												
Semi Major Axis												
Distance												
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-66.1	66.1			
100.0	100.0	100.0	100.0	0.1	0.1	-89.87	0.2	-66.1	66.1	65.9	0.22	293.859
200.0	200.0	200.0	200.0	0.3	0.2	-89.50	0.6	-66.0	66.0	65.5	0.58	114.227
205.6	205.6	205.6	205.6	0.3	0.3	-89.47	0.6	-66.0	66.0	65.4	0.60	109.488 CC
300.0	300.0	299.8	299.8	0.6	0.5	-88.86	1.3	-66.2	66.2	65.2	1.02	64.745
400.0	400.0	399.7	399.7	0.8	0.7	-87.51	2.9	-66.6	66.6	65.1	1.47	45.315
500.0	500.0	499.8	499.7	1.0	0.9	-85.57	5.2	-66.8	67.0	65.1	1.92	34.994 ES
600.0	600.0	599.6	599.5	1.2	1.1	-83.46	7.7	-67.0	67.5	65.1	2.35	28.692
700.0	700.0	698.9	698.8	1.5	1.3	-80.74	11.1	-67.9	68.8	66.0	2.79	24.642
800.0	800.0	798.8	798.6	1.7	1.6	-77.69	15.1	-69.2	70.8	67.6	3.23	21.923
900.0	900.0	899.0	898.7	1.9	1.8	-75.60	18.1	-70.4	72.7	69.1	3.65	19.912
1,000.0	1,000.0	998.9	998.6	2.1	2.0	-74.04	20.5	-71.7	74.5	70.5	4.08	18.285
1,100.0	1,100.0	1,098.7	1,098.4	2.3	2.2	-163.04	22.8	-73.1	78.2	73.7	4.51	17.353
1,200.0	1,199.8	1,198.0	1,197.7	2.6	2.4	-163.45	24.2	-74.9	85.5	80.6	4.91	17.413
1,300.0	1,299.6	1,297.5	1,297.1	2.8	2.6	-165.14	24.2	-77.7	94.9	89.5	5.31	17.856
1,400.0	1,399.4	1,396.0	1,395.5	3.0	2.8	-167.34	22.8	-81.2	104.7	99.0	5.72	18.301

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #16B-1612B
Project:	SEC.16-T10N-R57W	TVD Reference:	Well @ 4793.9ft (RKB - 17.3')
Reference Site:	Horsetail 16B PAD Sec.16-T10N-R57W	MD Reference:	Well @ 4793.9ft (RKB - 17.3')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Horsetail #16B-1612B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (1-21-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 185-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
1,500.0	1,499.1	1,496.3	1,495.7	3.2	3.0	-169.62	20.6	-85.1	115.0	108.8	6.13	18.744		
1,600.0	1,598.9	1,596.1	1,595.5	3.5	3.2	-171.32	18.7	-88.3	124.6	118.1	6.55	19.035		
1,700.0	1,698.6	1,695.4	1,694.6	3.7	3.4	-173.03	16.2	-91.5	134.4	127.4	6.97	19.291		
1,800.0	1,798.4	1,794.8	1,794.0	3.9	3.6	-174.83	12.9	-94.8	144.3	136.9	7.39	19.535		
1,900.0	1,898.1	1,900.2	1,899.2	4.2	3.8	-176.98	8.0	-96.3	152.3	144.5	7.82	19.474		
2,000.0	1,997.9	2,000.2	1,999.1	4.4	4.0	-178.42	4.4	-95.7	158.5	150.3	8.24	19.230		
2,100.0	2,097.6	2,100.0	2,098.9	4.7	4.2	-179.15	2.4	-94.9	164.7	156.0	8.67	18.989		
2,200.0	2,197.4	2,199.8	2,198.7	4.9	4.4	-179.60	1.2	-94.3	171.0	161.9	9.10	18.784		
2,300.0	2,297.2	2,300.5	2,299.3	5.2	4.7	-179.76	0.7	-93.1	176.8	167.3	9.54	18.541		
2,400.0	2,396.9	2,399.9	2,398.8	5.4	4.9	-179.99	0.0	-92.0	182.7	172.8	9.97	18.333		
2,500.0	2,496.7	2,499.7	2,498.6	5.7	5.1	179.54	-1.5	-91.0	188.6	178.2	10.40	18.140		
2,600.0	2,596.4	2,599.3	2,598.2	5.9	5.3	179.19	-2.8	-90.0	194.7	183.8	10.83	17.970		
2,700.0	2,696.2	2,698.6	2,697.4	6.2	5.5	179.01	-3.4	-89.2	200.8	189.6	11.27	17.825		
2,800.0	2,796.0	2,798.3	2,797.1	6.4	5.7	149.16	-4.3	-88.7	206.4	194.7	11.69	17.658		
2,900.0	2,895.8	2,899.5	2,898.3	6.6	5.9	119.86	-5.2	-87.8	209.9	197.8	12.09	17.361		
3,000.0	2,995.5	3,000.8	2,999.6	6.8	6.1	119.43	-6.0	-86.2	211.7	199.2	12.50	16.938		
3,100.0	3,095.3	3,101.2	3,100.0	7.0	6.3	121.00	-6.4	-84.1	213.1	200.2	12.92	16.500		
3,200.0	3,195.0	3,200.5	3,199.3	7.2	6.5	122.64	-6.4	-82.0	214.7	201.3	13.34	16.098		
3,300.0	3,294.8	3,300.4	3,299.1	7.5	6.7	124.43	-5.7	-79.9	216.6	202.8	13.76	15.744		
3,400.0	3,394.5	3,399.6	3,398.3	7.7	6.9	126.25	-4.7	-77.9	218.8	204.6	14.18	15.430		
3,500.0	3,494.3	3,498.6	3,497.3	7.9	7.2	128.18	-3.2	-76.1	221.5	206.9	14.60	15.170		
3,600.0	3,594.0	3,596.8	3,595.5	8.1	7.4	130.16	-1.1	-74.7	225.0	210.0	15.02	14.975		
3,700.0	3,693.8	3,697.6	3,696.3	8.4	7.6	132.04	0.8	-73.4	228.8	213.4	15.45	14.815		
3,800.0	3,793.5	3,802.0	3,800.6	8.6	7.8	133.77	1.7	-70.9	231.5	215.6	15.88	14.584		
3,900.0	3,893.3	3,904.0	3,902.5	8.8	8.0	135.42	2.1	-66.9	232.8	216.5	16.30	14.279		
4,000.0	3,993.0	4,003.4	4,001.9	9.1	8.2	136.99	2.4	-62.8	234.1	217.4	16.73	13.994		
4,100.0	4,092.8	4,103.7	4,102.0	9.3	8.4	138.61	2.9	-58.5	235.5	218.3	17.16	13.725		
4,200.0	4,192.5	4,203.8	4,202.0	9.5	8.6	140.26	3.4	-54.0	236.9	219.3	17.59	13.469		
4,300.0	4,292.3	4,304.3	4,302.4	9.8	8.8	141.91	4.0	-49.3	238.3	220.2	18.02	13.225		
4,400.0	4,392.1	4,399.0	4,397.0	10.0	9.1	143.45	4.7	-45.0	240.1	221.7	18.43	13.025		
4,500.0	4,491.8	4,492.0	4,490.0	10.3	9.2	144.56	5.3	-44.5	245.6	226.7	18.85	13.029		
4,600.0	4,591.6	4,589.7	4,587.7	10.5	9.4	145.57	6.2	-45.3	252.5	233.2	19.27	13.101		
4,700.0	4,691.3	4,688.7	4,686.7	10.8	9.7	146.54	7.4	-46.6	260.1	240.4	19.70	13.203		
4,800.0	4,791.1	4,794.8	4,792.8	11.0	9.9	147.48	8.2	-47.4	267.0	246.9	20.14	13.257		
4,900.0	4,890.8	4,896.8	4,894.8	11.3	10.1	148.18	6.9	-46.3	271.5	250.9	20.58	13.194		
5,000.0	4,990.6	5,003.1	5,001.0	11.5	10.3	148.89	5.5	-45.0	275.8	254.8	21.02	13.120		
5,100.0	5,090.0	5,187.4	5,180.4	11.8	10.7	148.15	-25.5	-21.9	264.2	242.7	21.53	12.275		
5,200.0	5,186.3	5,326.9	5,302.9	12.2	11.2	147.32	-79.0	16.1	241.6	220.1	21.54	11.218		
5,300.0	5,275.8	5,423.7	5,377.1	12.7	11.6	142.94	-137.7	35.6	228.8	207.4	21.44	10.671		
5,310.4	5,284.6	5,432.1	5,383.1	12.8	11.6	142.36	-143.5	36.6	228.7	207.2	21.46	10.658 SF		
5,400.0	5,355.2	5,506.9	5,433.2	13.5	12.0	135.97	-198.7	40.3	238.2	216.3	21.95	10.853		
5,500.0	5,421.6	5,606.7	5,490.6	14.4	12.7	126.67	-280.4	39.4	265.2	241.4	23.82	11.135		
5,600.0	5,472.5	5,679.0	5,529.1	15.6	13.3	119.81	-341.4	35.8	307.0	281.0	26.05	11.786		
5,700.0	5,506.1	5,724.0	5,550.3	17.1	13.7	112.41	-380.8	31.5	362.0	333.2	28.75	12.590		
5,800.0	5,521.2	5,724.0	5,550.3	18.7	13.7	100.81	-380.8	31.5	435.6	403.9	31.73	13.730		
5,900.0	5,522.0	5,724.0	5,550.3	20.3	13.7	95.99	-380.8	31.5	519.1	485.4	33.67	15.420		
6,000.0	5,522.0	5,724.0	5,550.3	21.9	13.7	95.48	-380.8	31.5	605.4	570.2	35.20	17.201		
6,100.0	5,522.0	5,724.0	5,550.3	23.5	13.7	94.98	-380.8	31.5	693.2	656.4	36.73	18.872		
6,200.0	5,522.0	5,724.0	5,550.3	25.2	13.7	94.51	-380.8	31.5	781.7	743.5	38.24	20.443		
6,300.0	5,522.0	5,724.0	5,550.3	26.8	13.7	94.08	-380.8	31.5	870.5	830.8	39.69	21.931		
6,400.0	5,522.0	5,724.0	5,550.3	28.5	13.7	93.68	-380.8	31.5	959.4	918.3	41.08	23.354		
6,500.0	5,522.0	5,724.0	5,550.3	30.1	13.7	93.33	-380.8	31.5	1,048.1	1,005.7	42.39	24.726		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #16B-1612B
Project:	SEC.16-T10N-R57W	TVD Reference:	Well @ 4793.9ft (RKB - 17.3')
Reference Site:	Horsetail 16B PAD Sec.16-T10N-R57W	MD Reference:	Well @ 4793.9ft (RKB - 17.3')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Horsetail #16B-1612B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (1-21-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 185-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
6,600.0	5,522.0	5,724.0	5,550.3	31.7	13.7	93.02	-380.8	31.5	1,136.4	1,092.8	43.60	26.063		
6,700.0	5,522.0	5,724.0	5,550.3	33.3	13.7	92.74	-380.8	31.5	1,224.2	1,179.5	44.72	27.375		
6,800.0	5,522.0	5,724.0	5,550.3	34.8	13.7	92.61	-380.8	31.5	1,311.7	1,265.6	46.06	28.479		
6,900.0	5,522.0	5,724.0	5,550.3	36.4	13.7	92.61	-380.8	31.5	1,400.5	1,352.7	47.75	29.330		
7,000.0	5,522.0	5,724.0	5,550.3	38.1	13.7	92.61	-380.8	31.5	1,490.8	1,441.3	49.47	30.137		
7,100.0	5,522.0	5,724.0	5,550.3	39.7	13.7	92.61	-380.8	31.5	1,582.2	1,531.0	51.20	30.901		
7,200.0	5,522.0	5,724.0	5,550.3	41.4	13.7	92.61	-380.8	31.5	1,674.6	1,621.6	52.95	31.623		
7,300.0	5,522.0	5,724.0	5,550.3	43.1	13.7	92.61	-380.8	31.5	1,767.8	1,713.1	54.72	32.304		
7,400.0	5,522.0	5,724.0	5,550.3	44.8	13.7	92.61	-380.8	31.5	1,861.7	1,805.2	56.51	32.947		
7,500.0	5,522.0	5,724.0	5,550.3	46.5	13.7	92.61	-380.8	31.5	1,956.3	1,898.0	58.30	33.555		
7,600.0	5,522.0	5,724.0	5,550.3	48.2	13.7	92.61	-380.8	31.5	2,051.3	1,991.2	60.11	34.129		
7,700.0	5,522.0	5,724.0	5,550.3	50.0	13.7	92.61	-380.8	31.5	2,146.8	2,084.9	61.92	34.671		
7,800.0	5,522.0	5,724.0	5,550.3	51.8	13.7	92.61	-380.8	31.5	2,242.7	2,179.0	63.74	35.184		
7,900.0	5,522.0	5,724.0	5,550.3	53.5	13.7	92.61	-380.8	31.5	2,339.0	2,273.4	65.57	35.669		
8,000.0	5,522.0	5,724.0	5,550.3	55.3	13.7	92.61	-380.8	31.5	2,435.5	2,368.1	67.41	36.129		
8,100.0	5,522.0	5,724.0	5,550.3	57.1	13.7	92.61	-380.8	31.5	2,532.3	2,463.1	69.25	36.566		
8,200.0	5,522.0	5,724.0	5,550.3	58.9	13.7	92.61	-380.8	31.5	2,629.4	2,558.3	71.10	36.980		
8,300.0	5,522.0	5,724.0	5,550.3	60.7	13.7	92.61	-380.8	31.5	2,726.6	2,653.7	72.96	37.374		
8,400.0	5,522.0	5,724.0	5,550.3	62.6	13.7	92.61	-380.8	31.5	2,824.1	2,749.3	74.81	37.748		
8,500.0	5,522.0	5,724.0	5,550.3	64.4	13.7	92.61	-380.8	31.5	2,921.7	2,845.0	76.68	38.105		
8,600.0	5,522.0	5,724.0	5,550.3	66.2	13.7	92.61	-380.8	31.5	3,019.5	2,941.0	78.54	38.445		
8,700.0	5,522.0	5,724.0	5,550.3	68.1	13.7	92.61	-380.8	31.5	3,117.4	3,037.0	80.41	38.769		
8,800.0	5,522.0	5,724.0	5,550.3	69.9	13.7	92.61	-380.8	31.5	3,215.5	3,133.2	82.28	39.078		
8,900.0	5,522.0	5,724.0	5,550.3	71.7	13.7	92.61	-380.8	31.5	3,313.6	3,229.5	84.16	39.374		
9,000.0	5,522.0	5,724.0	5,550.3	73.6	13.7	92.61	-380.8	31.5	3,411.9	3,325.9	86.04	39.657		
9,100.0	5,522.0	5,724.0	5,550.3	75.4	13.7	92.61	-380.8	31.5	3,510.3	3,422.4	87.92	39.927		
9,200.0	5,522.0	5,724.0	5,550.3	77.3	13.7	92.61	-380.8	31.5	3,608.7	3,518.9	89.80	40.187		
9,300.0	5,522.0	5,724.0	5,550.3	79.2	13.7	92.61	-380.8	31.5	3,707.3	3,615.6	91.68	40.435		
9,400.0	5,522.0	5,724.0	5,550.3	81.0	13.7	92.61	-380.8	31.5	3,805.9	3,712.3	93.57	40.674		
9,500.0	5,522.0	5,724.0	5,550.3	82.9	13.7	92.61	-380.8	31.5	3,904.6	3,809.1	95.46	40.903		
9,577.8	5,522.0	5,724.0	5,550.3	84.4	13.7	92.61	-380.8	31.5	3,981.4	3,884.5	96.93	41.075		

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #16B-1612B
Project:	SEC.16-T10N-R57W	TVD Reference:	Well @ 4793.9ft (RKB - 17.3')
Reference Site:	Horsetail 16B PAD Sec.16-T10N-R57W	MD Reference:	Well @ 4793.9ft (RKB - 17.3')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Horsetail #16B-1612B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (1-21-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 185-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-89.99	0.0	-66.1	66.1					
100.0	100.0	100.0	100.0	0.1	0.1	-89.87	0.2	-66.1	66.1	65.9	0.22	293.859		
200.0	200.0	200.0	200.0	0.3	0.2	-89.50	0.6	-66.0	66.0	65.5	0.58	114.227		
205.6	205.6	205.6	205.6	0.3	0.3	-89.47	0.6	-66.0	66.0	65.4	0.60	109.488 CC		
300.0	300.0	299.8	299.8	0.6	0.5	-88.86	1.3	-66.2	66.2	65.2	1.02	64.745		
400.0	400.0	399.7	399.7	0.8	0.7	-87.51	2.9	-66.6	66.6	65.1	1.47	45.315		
500.0	500.0	499.8	499.7	1.0	0.9	-85.57	5.2	-66.8	67.0	65.1	1.92	34.994 ES		
600.0	600.0	599.6	599.5	1.2	1.1	-83.46	7.7	-67.0	67.5	65.1	2.35	28.692		
700.0	700.0	698.9	698.8	1.5	1.3	-80.74	11.1	-67.9	68.8	66.0	2.79	24.642		
800.0	800.0	798.8	798.6	1.7	1.6	-77.69	15.1	-69.2	70.8	67.6	3.23	21.923		
900.0	900.0	899.0	898.7	1.9	1.8	-75.60	18.1	-70.4	72.7	69.1	3.65	19.912		
1,000.0	1,000.0	998.9	998.6	2.1	2.0	-74.04	20.5	-71.7	74.5	70.5	4.08	18.285		
1,100.0	1,100.0	1,098.7	1,098.4	2.3	2.2	-163.04	22.8	-73.1	78.2	73.7	4.51	17.353		
1,200.0	1,199.8	1,198.0	1,197.7	2.6	2.4	-163.45	24.2	-74.9	85.5	80.6	4.91	17.413		
1,300.0	1,299.6	1,297.5	1,297.1	2.8	2.6	-165.14	24.2	-77.7	94.9	89.5	5.31	17.856		
1,400.0	1,399.4	1,396.0	1,395.5	3.0	2.8	-167.34	22.8	-81.2	104.7	99.0	5.72	18.301		
1,500.0	1,499.1	1,496.3	1,495.7	3.2	3.0	-169.62	20.6	-85.1	115.0	108.8	6.13	18.744		
1,600.0	1,598.9	1,596.1	1,595.5	3.5	3.2	-171.32	18.7	-88.3	124.6	118.1	6.55	19.035		
1,700.0	1,698.6	1,695.4	1,694.6	3.7	3.4	-173.03	16.2	-91.5	134.4	127.4	6.97	19.291		
1,800.0	1,798.4	1,794.8	1,794.0	3.9	3.6	-174.83	12.9	-94.8	144.3	136.9	7.39	19.535		
1,900.0	1,898.1	1,900.2	1,899.2	4.2	3.8	-176.98	8.0	-96.3	152.3	144.5	7.82	19.474		
2,000.0	1,997.9	2,000.2	1,999.1	4.4	4.0	-178.42	4.4	-95.7	158.5	150.3	8.24	19.230		
2,100.0	2,097.6	2,100.0	2,098.9	4.7	4.2	-179.15	2.4	-94.9	164.7	156.0	8.67	18.989		
2,200.0	2,197.4	2,199.8	2,198.7	4.9	4.4	-179.60	1.2	-94.3	171.0	161.9	9.10	18.784		
2,300.0	2,297.2	2,300.5	2,299.3	5.2	4.7	-179.76	0.7	-93.1	176.8	167.3	9.54	18.541		
2,400.0	2,396.9	2,399.9	2,398.8	5.4	4.9	-179.99	0.0	-92.0	182.7	172.8	9.97	18.333		
2,500.0	2,496.7	2,499.7	2,498.6	5.7	5.1	179.54	-1.5	-91.0	188.6	178.2	10.40	18.140		
2,600.0	2,596.4	2,599.3	2,598.2	5.9	5.3	179.19	-2.8	-90.0	194.7	183.8	10.83	17.970		
2,700.0	2,696.2	2,698.6	2,697.4	6.2	5.5	179.01	-3.4	-89.2	200.8	189.6	11.27	17.825		
2,800.0	2,796.0	2,798.3	2,797.1	6.4	5.7	149.16	-4.3	-88.7	206.4	194.7	11.69	17.658		
2,900.0	2,895.8	2,899.5	2,898.3	6.6	5.9	119.86	-5.2	-87.8	209.9	197.8	12.09	17.361		
3,000.0	2,995.5	3,000.8	2,999.6	6.8	6.1	119.43	-6.0	-86.2	211.7	199.2	12.50	16.938		
3,100.0	3,095.3	3,101.2	3,100.0	7.0	6.3	121.00	-6.4	-84.1	213.1	200.2	12.92	16.500		
3,200.0	3,195.0	3,200.5	3,199.3	7.2	6.5	122.64	-6.4	-82.0	214.7	201.3	13.34	16.098		
3,300.0	3,294.8	3,300.4	3,299.1	7.5	6.7	124.43	-5.7	-79.9	216.6	202.8	13.76	15.744		
3,400.0	3,394.5	3,399.6	3,398.3	7.7	6.9	126.25	-4.7	-77.9	218.8	204.6	14.18	15.430		
3,500.0	3,494.3	3,498.6	3,497.3	7.9	7.2	128.18	-3.2	-76.1	221.5	206.9	14.60	15.170		
3,600.0	3,594.0	3,596.8	3,595.5	8.1	7.4	130.16	-1.1	-74.7	225.0	210.0	15.02	14.975		
3,700.0	3,693.8	3,697.6	3,696.3	8.4	7.6	132.04	0.8	-73.4	228.8	213.4	15.45	14.815		
3,800.0	3,793.5	3,802.0	3,800.6	8.6	7.8	133.77	1.7	-70.9	231.5	215.6	15.88	14.584		
3,900.0	3,893.3	3,904.0	3,902.5	8.8	8.0	135.42	2.1	-66.9	232.8	216.5	16.30	14.279		
4,000.0	3,993.0	4,003.4	4,001.9	9.1	8.2	136.99	2.4	-62.8	234.1	217.4	16.73	13.994		
4,100.0	4,092.8	4,103.7	4,102.0	9.3	8.4	138.61	2.9	-58.5	235.5	218.3	17.16	13.725		
4,200.0	4,192.5	4,203.8	4,202.0	9.5	8.6	140.26	3.4	-54.0	236.9	219.3	17.59	13.469		
4,300.0	4,292.3	4,305.5	4,303.6	9.8	8.9	141.93	4.0	-49.1	238.1	220.1	18.02	13.217		
4,400.0	4,392.1	4,402.4	4,400.4	10.0	9.1	143.54	4.4	-44.1	239.2	220.8	18.44	12.975		
4,500.0	4,491.8	4,491.0	4,489.0	10.3	9.2	144.70	5.3	-43.0	244.2	225.4	18.84	12.959		
4,600.0	4,591.6	4,590.3	4,588.3	10.5	9.4	145.76	6.3	-43.7	251.2	231.9	19.27	13.036		
4,700.0	4,691.3	4,689.6	4,687.6	10.8	9.7	146.76	7.5	-44.8	258.5	238.8	19.70	13.124		
4,800.0	4,791.1	4,789.1	4,786.9	11.0	9.9	147.12	6.3	-47.1	266.0	245.8	20.13	13.215		
4,900.0	4,890.8	4,898.0	4,894.6	11.3	10.1	144.50	-8.5	-54.6	271.3	250.8	20.58	13.183		
5,000.0	4,990.6	5,012.3	5,007.3	11.5	10.3	141.51	-27.0	-59.9	274.4	253.4	21.08	13.022		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #16B-1612B
Project:	SEC.16-T10N-R57W	TVD Reference:	Well @ 4793.9ft (RKB - 17.3')
Reference Site:	Horsetail 16B PAD Sec.16-T10N-R57W	MD Reference:	Well @ 4793.9ft (RKB - 17.3')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Horsetail #16B-1612B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (1-21-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 185-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,100.0	5,090.0	5,137.5	5,127.7	11.8	10.6	136.87	-60.1	-58.0	270.1	248.5	21.57	12.523		
5,116.3	5,106.0	5,156.1	5,145.2	11.8	10.7	136.07	-66.8	-57.5	270.0	248.3	21.64	12.478		
5,200.0	5,186.3	5,236.5	5,218.7	12.2	10.9	132.42	-99.1	-56.6	275.3	253.4	21.88	12.581		
5,300.0	5,275.8	5,334.6	5,304.1	12.7	11.3	127.64	-147.3	-58.4	294.4	272.1	22.35	13.172		
5,400.0	5,355.2	5,451.6	5,397.2	13.5	11.9	122.43	-217.9	-59.5	321.7	298.3	23.37	13.765		
5,500.0	5,421.6	5,540.6	5,457.6	14.4	12.5	117.11	-283.0	-61.6	357.3	332.4	24.89	14.357		
5,600.0	5,472.5	5,658.6	5,519.7	15.6	13.5	110.71	-383.1	-64.4	398.7	371.3	27.40	14.554		
5,700.0	5,506.1	5,774.0	5,559.6	17.1	14.8	104.53	-491.0	-61.4	439.4	409.0	30.42	14.446		
5,800.0	5,521.2	5,865.3	5,571.9	18.7	16.0	98.33	-581.3	-58.6	482.0	448.5	33.47	14.401		
5,900.0	5,522.0	5,958.3	5,573.9	20.3	17.2	96.22	-674.3	-56.6	525.2	488.8	36.39	14.431		
6,000.0	5,522.0	6,052.1	5,572.4	21.9	18.6	95.50	-768.0	-55.0	564.0	524.7	39.32	14.343		
6,100.0	5,522.0	6,141.0	5,569.4	23.5	19.9	94.80	-856.8	-53.2	597.8	555.5	42.25	14.149		
6,200.0	5,522.0	6,235.4	5,566.9	25.2	21.3	94.26	-951.2	-52.1	627.4	582.1	45.27	13.859		
6,300.0	5,522.0	6,335.9	5,564.0	26.8	22.8	93.79	-1,051.6	-50.2	651.3	602.9	48.42	13.452		
6,400.0	5,522.0	6,441.2	5,561.4	28.5	24.4	93.41	-1,156.9	-47.9	669.9	618.3	51.56	12.993		
6,500.0	5,522.0	6,524.0	5,559.6	30.1	25.6	93.17	-1,239.7	-46.9	684.2	630.0	54.23	12.618		
6,600.0	5,522.0	6,617.8	5,558.0	31.7	27.2	92.98	-1,333.4	-47.6	695.3	638.2	57.08	12.182		
6,700.0	5,522.0	6,736.8	5,555.4	33.3	29.1	92.73	-1,452.4	-47.4	700.6	640.4	60.22	11.634		
6,800.0	5,522.0	6,826.5	5,553.3	34.8	30.6	92.57	-1,542.1	-46.1	699.7	636.6	63.07	11.093		
6,882.9	5,522.0	6,898.6	5,552.5	36.2	31.7	92.50	-1,614.2	-44.9	698.5	632.9	65.63	10.643		
6,900.0	5,522.0	6,914.3	5,552.7	36.4	32.0	92.52	-1,629.9	-45.0	698.6	632.4	66.16	10.559		
7,000.0	5,522.0	7,028.3	5,552.8	38.1	33.9	92.53	-1,743.9	-44.3	697.8	628.0	69.82	9.995		
7,049.3	5,522.0	7,069.0	5,552.2	38.9	34.6	92.49	-1,784.5	-43.9	697.4	626.0	71.39	9.770		
7,100.0	5,522.0	7,114.1	5,551.3	39.7	35.4	92.41	-1,829.6	-44.2	697.7	624.7	73.03	9.553		
7,200.0	5,522.0	7,214.3	5,552.1	41.4	37.0	92.47	-1,929.9	-44.9	698.4	622.0	76.41	9.140		
7,300.0	5,522.0	7,312.7	5,553.6	43.1	38.7	92.59	-2,028.2	-45.9	699.5	619.6	79.83	8.761		
7,400.0	5,522.0	7,431.3	5,555.5	44.8	40.7	92.74	-2,146.8	-45.5	699.2	615.6	83.65	8.359		
7,500.0	5,522.0	7,552.0	5,556.6	46.5	42.9	92.86	-2,267.4	-40.9	695.3	607.7	87.56	7.940		
7,600.0	5,522.0	7,655.3	5,556.4	48.2	44.7	92.86	-2,370.6	-36.6	691.1	599.9	91.22	7.576		
7,700.0	5,522.0	7,739.0	5,555.9	50.0	46.1	92.83	-2,454.2	-32.6	686.4	591.9	94.47	7.266		
7,800.0	5,522.0	7,827.8	5,554.7	51.8	47.7	92.74	-2,542.9	-31.5	685.1	587.2	97.83	7.003		
7,875.4	5,522.0	7,896.5	5,553.8	53.1	48.9	92.66	-2,611.7	-31.1	684.6	584.2	100.40	6.819		
7,900.0	5,522.0	7,915.2	5,553.7	53.5	49.2	92.65	-2,630.3	-31.2	684.7	583.6	101.17	6.768		
8,000.0	5,522.0	8,041.3	5,552.5	55.3	51.4	92.56	-2,756.5	-29.5	683.2	578.0	105.25	6.491		
8,100.0	5,522.0	8,144.1	5,553.0	57.1	53.2	92.61	-2,859.2	-26.0	679.8	571.0	108.81	6.248		
8,200.0	5,522.0	8,238.7	5,552.8	58.9	54.8	92.61	-2,953.8	-23.4	677.1	564.8	112.33	6.027		
8,300.0	5,522.0	8,350.2	5,552.3	60.7	56.8	92.58	-3,065.1	-19.2	673.2	557.1	116.13	5.797		
8,400.0	5,522.0	8,432.0	5,553.0	62.6	58.2	92.65	-3,146.9	-16.3	669.8	550.3	119.42	5.609		
8,441.3	5,522.0	8,462.0	5,553.2	63.3	58.7	92.67	-3,176.9	-15.8	669.2	548.5	120.71	5.544		
8,500.0	5,522.0	8,504.7	5,552.9	64.4	59.5	92.65	-3,219.6	-16.6	670.1	547.6	122.55	5.468		
8,600.0	5,522.0	8,617.2	5,552.3	66.2	61.4	92.59	-3,332.0	-18.8	672.2	545.8	126.36	5.320		
8,700.0	5,522.0	8,725.0	5,552.2	68.1	63.3	92.57	-3,439.8	-19.3	672.6	542.5	130.16	5.168		
8,800.0	5,522.0	8,831.3	5,552.0	69.9	65.2	92.56	-3,546.1	-17.9	671.3	537.4	133.88	5.014		
8,900.0	5,522.0	8,935.4	5,549.8	71.7	67.1	92.38	-3,650.2	-16.1	669.4	531.8	137.66	4.863		
9,000.0	5,522.0	9,049.9	5,548.1	73.6	69.1	92.25	-3,764.6	-12.9	666.6	525.0	141.56	4.709		
9,100.0	5,522.0	9,145.7	5,545.9	75.4	70.8	92.07	-3,860.3	-9.5	663.0	517.9	145.15	4.568		
9,200.0	5,522.0	9,243.4	5,544.7	77.3	72.5	91.97	-3,958.0	-5.9	659.3	510.5	148.71	4.433		
9,300.0	5,522.0	9,327.0	5,543.5	79.2	74.0	91.88	-4,041.5	-3.5	656.4	504.3	152.10	4.316		
9,331.7	5,522.0	9,353.4	5,543.2	79.8	74.4	91.85	-4,067.9	-3.3	656.2	503.0	153.16	4.284		
9,400.0	5,522.0	9,400.3	5,543.4	81.0	75.2	91.87	-4,114.8	-4.2	657.4	502.2	155.26	4.234		
9,500.0	5,522.0	9,519.3	5,544.2	82.9	77.4	91.93	-4,233.8	-6.4	659.3	500.0	159.28	4.139		
9,577.8	5,522.0	9,535.0	5,544.2	84.4	77.7	91.93	-4,249.5	-6.4	662.4	501.3	161.04	4.113 SF		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #16B-1612B
Project:	SEC.16-T10N-R57W	TVD Reference:	Well @ 4793.9ft (RKB - 17.3')
Reference Site:	Horsetail 16B PAD Sec.16-T10N-R57W	MD Reference:	Well @ 4793.9ft (RKB - 17.3')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Horsetail #16B-1612B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (1-21-14)	Offset TVD Reference:	Offset Datum

Horsetail 16B PAD Sec.16-T10N-R57W - Horsetail #16B-1609A - Wellbore #1 - Plan #1 (10-24-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.0	0.0	0.0	0.0	0.0	0.0	-52.93	75.0	-99.3	124.5					
100.0	100.0	100.0	100.0	0.1	0.1	-52.93	75.0	-99.3	124.5	124.3	0.22	553.856		
200.0	200.0	200.0	200.0	0.3	0.3	-52.93	75.0	-99.3	124.5	123.8	0.67	184.619		
300.0	300.0	300.0	300.0	0.6	0.6	-52.93	75.0	-99.3	124.5	123.4	1.12	110.771		
400.0	400.0	400.0	400.0	0.8	0.8	-52.93	75.0	-99.3	124.5	122.9	1.57	79.122		
500.0	500.0	500.0	500.0	1.0	1.0	-52.93	75.0	-99.3	124.5	122.5	2.02	61.540		
600.0	600.0	600.0	600.0	1.2	1.2	-52.93	75.0	-99.3	124.5	122.0	2.47	50.351		
700.0	700.0	700.0	700.0	1.5	1.5	-52.93	75.0	-99.3	124.5	121.6	2.92	42.604		
800.0	800.0	800.0	800.0	1.7	1.7	-52.93	75.0	-99.3	124.5	121.1	3.37	36.924		
900.0	900.0	900.0	900.0	1.9	1.9	-52.93	75.0	-99.3	124.5	120.7	3.82	32.580		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-52.93	75.0	-99.3	124.5	120.2	4.27	29.150 CC, ES		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	-143.39	75.0	-99.3	125.9	121.2	4.71	26.751		
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	-144.72	75.0	-99.3	130.1	125.0	5.13	25.368		
1,300.0	1,299.6	1,299.6	1,299.6	2.8	2.8	-146.41	75.0	-99.3	135.9	130.3	5.56	24.440		
1,400.0	1,399.4	1,399.4	1,399.4	3.0	3.0	-147.97	75.0	-99.3	141.8	135.8	5.99	23.647		
1,500.0	1,499.1	1,499.1	1,499.1	3.2	3.3	-149.41	75.0	-99.3	147.7	141.3	6.43	22.966		
1,600.0	1,598.9	1,596.5	1,596.4	3.5	3.5	-151.24	74.1	-100.7	154.5	147.7	6.84	22.576		
1,700.0	1,698.6	1,695.0	1,694.9	3.7	3.6	-153.75	71.8	-104.2	162.8	155.6	7.24	22.475		
1,800.0	1,798.4	1,794.4	1,794.2	3.9	3.8	-156.09	69.2	-108.0	171.5	163.9	7.65	22.420		
1,900.0	1,898.1	1,893.8	1,893.5	4.2	4.0	-158.20	66.7	-111.8	180.5	172.4	8.06	22.386		
2,000.0	1,997.9	1,993.2	1,992.7	4.4	4.2	-160.12	64.2	-115.6	189.6	181.1	8.48	22.369		
2,100.0	2,097.6	2,092.6	2,092.0	4.7	4.4	-161.85	61.7	-119.3	199.0	190.1	8.90	22.365		
2,200.0	2,197.4	2,191.9	2,191.3	4.9	4.6	-163.43	59.2	-123.1	208.5	199.2	9.32	22.370		
2,300.0	2,297.2	2,291.3	2,290.6	5.2	4.9	-164.87	56.7	-126.9	218.2	208.4	9.75	22.383		
2,400.0	2,396.9	2,390.7	2,389.9	5.4	5.1	-166.19	54.2	-130.6	228.0	217.8	10.18	22.400		
2,500.0	2,496.7	2,490.1	2,489.2	5.7	5.3	-167.40	51.6	-134.4	237.9	227.3	10.61	22.422		
2,600.0	2,596.4	2,589.5	2,588.4	5.9	5.5	-168.51	49.1	-138.2	247.9	236.8	11.04	22.446		
2,700.0	2,696.2	2,688.9	2,687.7	6.2	5.7	-169.53	46.6	-142.0	258.0	246.5	11.48	22.472		
2,800.0	2,796.0	2,788.4	2,787.1	6.4	5.9	-159.73	44.1	-145.7	267.5	255.6	11.90	22.474		
2,900.0	2,895.8	2,888.0	2,886.7	6.6	6.2	129.43	41.6	-149.5	275.8	263.5	12.31	22.410		
3,000.0	2,995.5	2,987.7	2,986.2	6.8	6.4	127.99	39.1	-153.3	283.4	270.7	12.72	22.280		
3,100.0	3,095.3	3,087.4	3,085.8	7.0	6.6	128.46	36.5	-157.1	291.1	277.9	13.15	22.138		
3,200.0	3,195.0	3,187.1	3,185.4	7.2	6.9	128.91	34.0	-160.9	298.7	285.1	13.58	21.999		
3,300.0	3,294.8	3,286.7	3,285.0	7.5	7.1	129.33	31.5	-164.6	306.4	292.4	14.01	21.865		
3,400.0	3,394.5	3,386.4	3,384.6	7.7	7.3	129.73	29.0	-168.4	314.1	299.6	14.45	21.735		
3,500.0	3,494.3	3,486.1	3,484.1	7.9	7.5	130.12	26.5	-172.2	321.8	306.9	14.89	21.610		
3,600.0	3,594.0	3,585.8	3,583.7	8.1	7.8	130.48	23.9	-176.0	329.5	314.1	15.33	21.488		
3,700.0	3,693.8	3,685.5	3,683.3	8.4	8.0	130.83	21.4	-179.8	337.2	321.4	15.78	21.371		
3,800.0	3,793.5	3,785.2	3,782.9	8.6	8.2	131.16	18.9	-183.6	344.9	328.7	16.23	21.259		
3,900.0	3,893.3	3,886.0	3,883.6	8.8	8.5	131.49	16.4	-187.4	352.7	336.0	16.68	21.148		
4,000.0	3,993.0	3,994.8	3,992.4	9.1	8.7	132.13	15.0	-189.3	358.8	341.7	17.12	20.964		
4,100.0	4,092.8	4,095.2	4,092.8	9.3	8.9	132.96	15.0	-189.3	363.6	346.0	17.54	20.727		
4,200.0	4,192.5	4,195.0	4,192.5	9.5	9.1	133.76	15.0	-189.3	368.4	350.5	17.97	20.503		
4,300.0	4,292.3	4,294.7	4,292.3	9.8	9.3	134.54	15.0	-189.3	373.4	355.0	18.40	20.293		
4,400.0	4,392.1	4,394.5	4,392.1	10.0	9.5	135.30	15.0	-189.3	378.3	359.5	18.83	20.094		
4,500.0	4,491.8	4,494.2	4,491.8	10.3	9.7	136.04	15.0	-189.3	383.4	364.1	19.26	19.906		
4,600.0	4,591.6	4,594.0	4,591.6	10.5	9.9	136.76	15.0	-189.3	388.5	368.8	19.69	19.728		
4,700.0	4,691.3	4,693.7	4,691.3	10.8	10.1	137.46	15.0	-189.3	393.7	373.5	20.13	19.560		
4,800.0	4,791.1	4,793.5	4,791.1	11.0	10.3	138.15	15.0	-189.3	398.9	378.3	20.56	19.401		
4,900.0	4,890.8	4,893.2	4,890.8	11.3	10.5	138.81	15.0	-189.3	404.2	383.2	21.00	19.250		
5,000.0	4,990.6	5,001.2	4,998.7	11.5	10.8	138.99	11.4	-190.1	409.0	387.5	21.46	19.060		
5,100.0	5,090.0	5,112.8	5,107.2	11.8	11.1	136.29	-13.2	-195.3	412.8	390.9	21.92	18.835		

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Horsetail 16B PAD Sec.16-T10N-R57W - Horsetail #16B-1611A - Wellbore #1 - Plan #2 (1-21-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-12.47	75.1	-16.6	76.9					
100.0	100.0	100.0	100.0	0.1	0.1	-12.47	75.1	-16.6	76.9	76.6	0.22	341.992		
200.0	200.0	200.0	200.0	0.3	0.3	-12.47	75.1	-16.6	76.9	76.2	0.67	113.997		
300.0	300.0	300.0	300.0	0.6	0.6	-12.47	75.1	-16.6	76.9	75.7	1.12	68.398		
400.0	400.0	400.0	400.0	0.8	0.8	-12.47	75.1	-16.6	76.9	75.3	1.57	48.856		
500.0	500.0	500.0	500.0	1.0	1.0	-12.47	75.1	-16.6	76.9	74.8	2.02	37.999		
600.0	600.0	600.0	600.0	1.2	1.2	-12.47	75.1	-16.6	76.9	74.4	2.47	31.090		
700.0	700.0	700.0	700.0	1.5	1.5	-12.47	75.1	-16.6	76.9	73.9	2.92	26.307		
800.0	800.0	800.0	800.0	1.7	1.7	-12.47	75.1	-16.6	76.9	73.5	3.37	22.799		
900.0	900.0	900.0	900.0	1.9	1.9	-12.47	75.1	-16.6	76.9	73.0	3.82	20.117		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-12.47	75.1	-16.6	76.9	72.6	4.27	18.000 CC		
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.4	-103.73	75.1	-16.6	77.3	72.6	4.71	16.414 ES		
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	-107.40	75.1	-16.6	78.7	73.5	5.14	15.317		
1,300.0	1,299.6	1,299.6	1,299.6	2.8	2.8	-112.10	75.1	-16.6	81.0	75.5	5.57	14.539		
1,400.0	1,399.4	1,399.4	1,399.4	3.0	3.0	-116.51	75.1	-16.6	83.9	77.9	6.02	13.950		
1,500.0	1,499.1	1,499.1	1,499.1	3.2	3.3	-120.61	75.1	-16.6	87.3	80.8	6.46	13.507		
1,600.0	1,598.9	1,598.9	1,598.9	3.5	3.5	-124.38	75.1	-16.6	91.0	84.1	6.91	13.179		
1,700.0	1,698.6	1,698.6	1,698.6	3.7	3.7	-127.85	75.1	-16.6	95.1	87.8	7.35	12.939		
1,800.0	1,798.4	1,798.4	1,798.4	3.9	3.9	-131.01	75.1	-16.6	99.6	91.8	7.80	12.766		
1,900.0	1,898.1	1,898.1	1,898.1	4.2	4.2	-133.90	75.1	-16.6	104.3	96.0	8.25	12.646		
2,000.0	1,997.9	1,997.9	1,997.9	4.4	4.4	-136.54	75.1	-16.6	109.2	100.6	8.69	12.566		
2,100.0	2,097.6	2,097.6	2,097.6	4.7	4.6	-138.94	75.1	-16.6	114.4	105.3	9.14	12.517		
2,200.0	2,197.4	2,197.4	2,197.4	4.9	4.8	-141.13	75.1	-16.6	119.8	110.2	9.59	12.492		
2,300.0	2,297.2	2,297.2	2,297.2	5.2	5.1	-143.13	75.1	-16.6	125.3	115.2	10.03	12.485		
2,400.0	2,396.9	2,396.9	2,396.9	5.4	5.3	-144.96	75.1	-16.6	130.9	120.5	10.48	12.492		
2,500.0	2,496.7	2,496.7	2,496.7	5.7	5.5	-146.64	75.1	-16.6	136.7	125.8	10.93	12.509		
2,600.0	2,596.4	2,600.3	2,600.3	5.9	5.7	-148.68	73.4	-16.0	141.3	129.9	11.35	12.444		
2,700.0	2,696.2	2,703.8	2,703.7	6.2	5.9	-151.55	68.2	-14.1	143.3	131.5	11.74	12.199		
2,800.0	2,796.0	2,803.6	2,803.2	6.4	6.1	-176.01	61.7	-11.7	144.2	132.1	12.11	11.907		
2,900.0	2,895.8	2,903.5	2,902.8	6.6	6.2	144.67	55.2	-9.4	145.1	132.6	12.47	11.634		
3,000.0	2,995.5	3,003.3	3,002.4	6.8	6.4	142.55	48.9	-7.1	146.0	133.1	12.86	11.353		
3,100.0	3,095.3	3,103.2	3,102.1	7.0	6.6	142.36	42.6	-4.9	146.9	133.7	13.24	11.093		
3,200.0	3,195.0	3,203.2	3,201.9	7.2	6.8	142.17	36.3	-2.6	147.8	134.2	13.63	10.843		
3,300.0	3,294.8	3,303.2	3,301.7	7.5	7.0	141.98	30.0	-0.4	148.7	134.7	14.03	10.601		
3,400.0	3,394.5	3,403.2	3,401.5	7.7	7.2	141.80	23.7	1.9	149.7	135.2	14.43	10.369		
3,500.0	3,494.3	3,503.2	3,501.2	7.9	7.4	141.62	17.4	4.1	150.6	135.7	14.84	10.145		
3,600.0	3,594.0	3,603.2	3,601.0	8.1	7.7	141.43	11.1	6.3	151.5	136.3	15.26	9.930		
3,700.0	3,693.8	3,703.2	3,700.8	8.4	7.9	141.26	4.7	8.6	152.4	136.8	15.68	9.723		
3,800.0	3,793.5	3,803.2	3,800.5	8.6	8.1	141.08	-1.6	10.8	153.4	137.3	16.10	9.524		
3,900.0	3,893.3	3,903.2	3,900.3	8.8	8.3	140.91	-7.9	13.1	154.3	137.8	16.53	9.334		
4,000.0	3,993.0	4,003.2	4,000.1	9.1	8.5	140.73	-14.2	15.3	155.2	138.3	16.96	9.151		
4,100.0	4,092.8	4,103.2	4,099.8	9.3	8.7	140.56	-20.5	17.6	156.1	138.7	17.40	8.975		
4,200.0	4,192.5	4,203.2	4,199.6	9.5	9.0	140.40	-26.8	19.8	157.1	139.2	17.84	8.806		
4,300.0	4,292.3	4,303.2	4,299.4	9.8	9.2	140.23	-33.1	22.1	158.0	139.7	18.28	8.644		
4,400.0	4,392.1	4,403.2	4,399.2	10.0	9.4	140.07	-39.4	24.3	158.9	140.2	18.73	8.488		
4,500.0	4,491.8	4,503.2	4,498.9	10.3	9.7	139.90	-45.7	26.5	159.9	140.7	19.17	8.338		
4,600.0	4,591.6	4,603.2	4,598.7	10.5	9.9	139.74	-52.0	28.8	160.8	141.2	19.62	8.194		
4,700.0	4,691.3	4,703.2	4,698.5	10.8	10.1	139.58	-58.3	31.0	161.8	141.7	20.08	8.056		
4,800.0	4,791.1	4,803.2	4,798.2	11.0	10.4	139.43	-64.6	33.3	162.7	142.2	20.53	7.923		
4,900.0	4,890.8	4,903.2	4,898.0	11.3	10.6	139.27	-70.9	35.5	163.6	142.6	20.99	7.795		
5,000.0	4,990.6	5,010.1	5,004.7	11.5	10.9	138.82	-78.7	38.3	164.0	142.5	21.48	7.636		
5,100.0	5,090.0	5,132.5	5,123.0	11.8	11.3	133.54	-107.0	48.4	155.5	133.4	22.12	7.029		

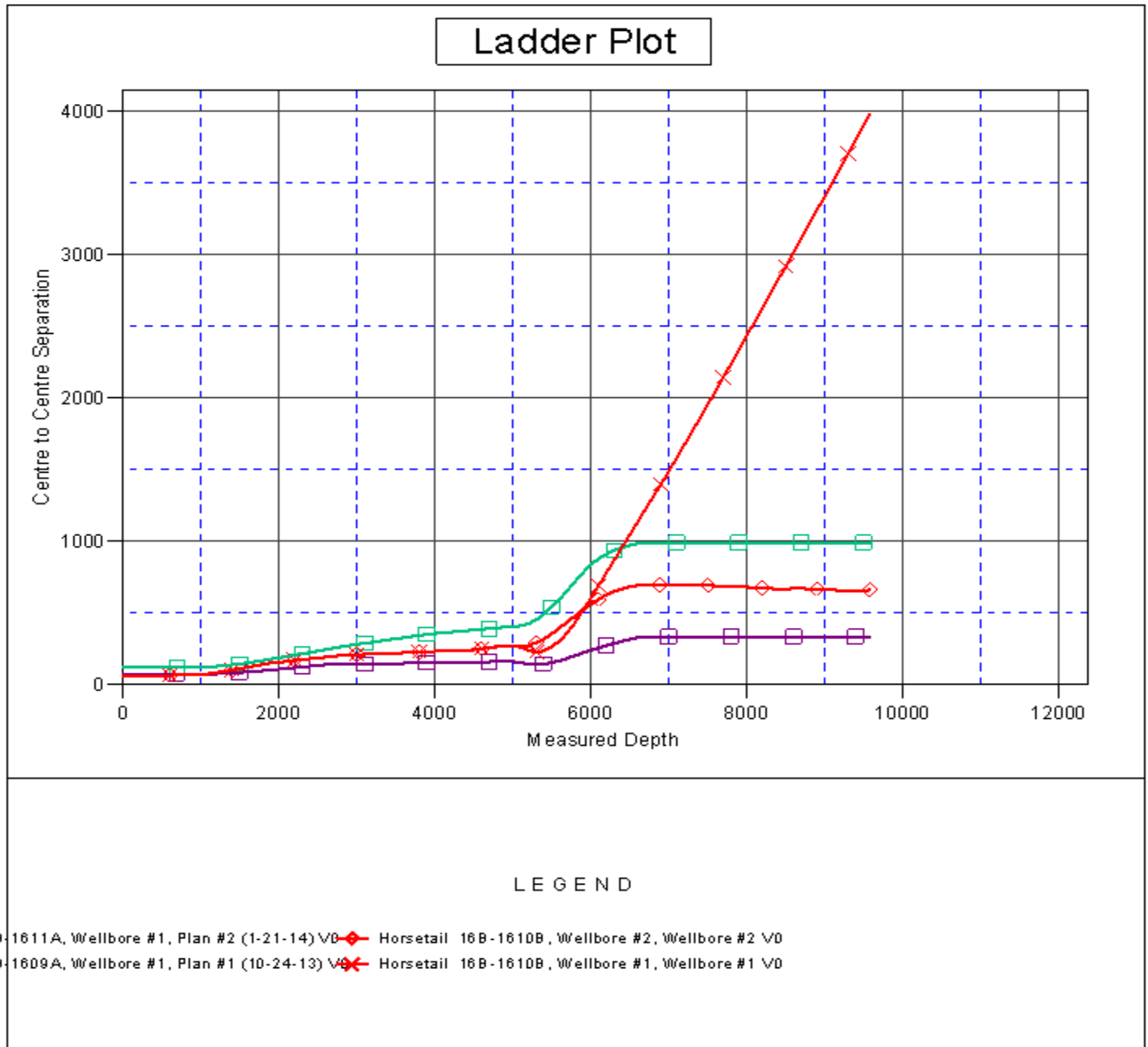
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Survey Design													Offset Site Error:	
Horsetail 16B PAD Sec.16-T10N-R57W - Horsetail #16B-1611A - Wellbore #1 - Plan #2 (1-21-14)													0.0 ft	
Survey Program: 0-MWD													Offset Well Error:	
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
5,200.0	5,186.3	5,248.3	5,225.6	12.2	11.9	125.45	-157.1	66.3	147.2	124.3	22.92	6.422		
5,300.0	5,275.8	5,357.6	5,309.5	12.7	12.6	115.37	-222.9	89.8	143.3	119.0	24.34	5.887		
5,316.1	5,289.4	5,374.7	5,321.2	12.8	12.8	113.62	-234.6	93.9	143.2	118.5	24.66	5.808		
5,400.0	5,355.2	5,461.0	5,373.7	13.5	13.6	104.37	-298.9	116.9	145.6	119.0	26.51	5.491		
5,500.0	5,421.6	5,559.1	5,418.9	14.4	14.8	93.71	-380.7	146.1	154.3	125.3	29.03	5.318		
5,600.0	5,472.5	5,652.7	5,446.1	15.6	16.1	84.35	-465.0	176.2	168.5	137.1	31.42	5.363		
5,700.0	5,506.1	5,742.6	5,456.7	17.1	17.5	76.68	-549.0	206.2	186.2	152.7	33.53	5.553		
5,800.0	5,521.2	5,831.4	5,457.0	18.7	18.8	72.03	-633.0	234.8	205.1	169.5	35.62	5.759		
5,900.0	5,522.0	5,920.2	5,457.0	20.3	20.1	72.79	-718.3	259.5	223.2	184.7	38.54	5.791		
6,000.0	5,522.0	6,008.2	5,457.0	21.9	21.5	74.09	-803.9	280.1	240.8	199.3	41.53	5.798		
6,100.0	5,522.0	6,100.0	5,457.0	23.5	22.9	75.23	-894.0	297.3	257.9	213.3	44.59	5.784		
6,200.0	5,522.0	6,182.4	5,457.0	25.2	24.3	76.11	-975.6	309.0	274.4	226.9	47.45	5.782		
6,300.0	5,522.0	6,268.7	5,457.0	26.8	25.6	76.90	-1,061.4	317.6	290.3	240.0	50.30	5.771		
6,400.0	5,522.0	6,354.4	5,457.0	28.5	27.0	77.57	-1,147.0	322.2	305.5	252.4	53.04	5.759		
6,500.0	5,522.0	6,443.7	5,457.0	30.1	28.4	78.17	-1,236.3	323.1	319.8	264.1	55.73	5.738		
6,600.0	5,522.0	6,543.1	5,457.0	31.7	30.1	78.61	-1,335.7	323.1	330.2	271.7	58.47	5.647		
6,700.0	5,522.0	6,643.0	5,457.0	33.3	31.7	78.82	-1,435.6	323.1	335.4	274.4	61.07	5.492		
6,800.0	5,522.0	6,743.0	5,457.0	34.8	33.5	78.85	-1,535.6	323.1	336.1	272.2	63.97	5.255		
6,900.0	5,522.0	6,843.0	5,457.0	36.4	35.2	78.85	-1,635.6	323.1	336.1	268.8	67.37	4.990		
7,000.0	5,522.0	6,943.0	5,457.0	38.1	36.9	78.85	-1,735.6	323.0	336.2	265.3	70.81	4.747		
7,100.0	5,522.0	7,043.0	5,457.0	39.7	38.7	78.85	-1,835.6	323.0	336.2	261.9	74.28	4.525		
7,200.0	5,522.0	7,143.0	5,457.0	41.4	40.5	78.85	-1,935.6	323.0	336.2	258.4	77.79	4.322		
7,300.0	5,522.0	7,243.0	5,457.0	43.1	42.3	78.85	-2,035.6	323.0	336.2	254.8	81.32	4.134		
7,400.0	5,522.0	7,343.0	5,457.0	44.8	44.1	78.85	-2,135.6	323.0	336.2	251.3	84.87	3.961		
7,500.0	5,522.0	7,443.0	5,457.0	46.5	45.9	78.85	-2,235.6	323.0	336.2	247.7	88.44	3.801		
7,600.0	5,522.0	7,543.0	5,457.0	48.2	47.7	78.85	-2,335.6	323.0	336.2	244.1	92.03	3.653		
7,700.0	5,522.0	7,643.0	5,457.0	50.0	49.6	78.85	-2,435.6	322.9	336.2	240.5	95.64	3.515		
7,800.0	5,522.0	7,743.0	5,457.0	51.8	51.4	78.85	-2,535.6	322.9	336.2	236.9	99.26	3.387		
7,900.0	5,522.0	7,843.0	5,457.0	53.5	53.3	78.85	-2,635.6	322.9	336.2	233.3	102.89	3.267		
8,000.0	5,522.0	7,943.0	5,457.0	55.3	55.1	78.85	-2,735.6	322.9	336.2	229.6	106.54	3.155		
8,100.0	5,522.0	8,043.0	5,457.0	57.1	57.0	78.85	-2,835.6	322.9	336.2	226.0	110.19	3.051		
8,200.0	5,522.0	8,143.0	5,457.0	58.9	58.8	78.85	-2,935.6	322.9	336.2	222.3	113.86	2.953		
8,300.0	5,522.0	8,243.0	5,457.0	60.7	60.7	78.85	-3,035.6	322.9	336.2	218.6	117.53	2.860		
8,400.0	5,522.0	8,343.0	5,457.0	62.6	62.6	78.85	-3,135.6	322.8	336.2	215.0	121.21	2.774		
8,500.0	5,522.0	8,443.0	5,457.0	64.4	64.4	78.85	-3,235.6	322.8	336.2	211.3	124.89	2.692		
8,600.0	5,522.0	8,543.0	5,457.0	66.2	66.3	78.85	-3,335.6	322.8	336.2	207.6	128.59	2.614		
8,700.0	5,522.0	8,643.0	5,457.0	68.1	68.2	78.85	-3,435.6	322.8	336.2	203.9	132.28	2.541		
8,800.0	5,522.0	8,743.0	5,457.0	69.9	70.1	78.85	-3,535.6	322.8	336.2	200.2	135.99	2.472		
8,900.0	5,522.0	8,843.0	5,457.0	71.7	72.0	78.85	-3,635.6	322.8	336.2	196.5	139.70	2.407		
9,000.0	5,522.0	8,943.0	5,457.0	73.6	73.8	78.85	-3,735.6	322.8	336.2	192.8	143.41	2.344		
9,100.0	5,522.0	9,043.0	5,457.0	75.4	75.7	78.85	-3,835.6	322.7	336.2	189.1	147.13	2.285		
9,200.0	5,522.0	9,143.0	5,457.0	77.3	77.6	78.85	-3,935.6	322.7	336.2	185.3	150.85	2.229		
9,300.0	5,522.0	9,243.0	5,457.0	79.2	79.5	78.85	-4,035.6	322.7	336.2	181.6	154.57	2.175		
9,400.0	5,522.0	9,343.0	5,457.0	81.0	81.4	78.85	-4,135.6	322.7	336.2	177.9	158.30	2.124		
9,500.0	5,522.0	9,443.0	5,457.0	82.9	83.3	78.85	-4,235.6	322.7	336.2	174.2	162.03	2.075		
9,577.8	5,522.0	9,520.7	5,457.0	84.4	84.7	78.85	-4,313.3	322.7	336.2	171.3	164.86	2.039 SF		

Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #16B-1612B
Project:	SEC.16-T10N-R57W	TVD Reference:	Well @ 4793.9ft (RKB - 17.3')
Reference Site:	Horsetail 16B PAD Sec.16-T10N-R57W	MD Reference:	Well @ 4793.9ft (RKB - 17.3')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Horsetail #16B-1612B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (1-21-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4793.9ft (RKB - 17.3')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Horsetail #16B-1612B
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.13°



Company:	Whiting Oil & Gas	Local Co-ordinate Reference:	Well Horsetail #16B-1612B
Project:	SEC.16-T10N-R57W	TVD Reference:	Well @ 4793.9ft (RKB - 17.3')
Reference Site:	Horsetail 16B PAD Sec.16-T10N-R57W	MD Reference:	Well @ 4793.9ft (RKB - 17.3')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Horsetail #16B-1612B	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #2 (1-21-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4793.9ft (RKB - 17.3')
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Horsetail #16B-1612B
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.13°

